

### MCV 4U Activity: Investigating the Ways that Three Planes Can Intersect

**Instructions:** Create three “planes” from paper (Post it notes work or rip a sheet of paper into smaller parts). Try to determine the possible ways for these planes to intersect and complete the handout as you go.

Consistent Systems of Equations for Planes (These have a common intersection of some sort for all three planes, so you can find a solution)		Inconsistent Systems of Equations for Planes (These have one or more planes that do not intersect with one another)	
Case 1:	Case 2:	Case 1:	Case 2:
Case 3:	Case 4:	Case 3:	Case 4:

**When you are done (or stuck) check the supplemental video posted or the text book to see any ideas that you do not already have.**

We have already been solving these systems. Set up an augmented matrix and solve for  $x$ ,  $y$ , and  $z$ . Introduce parameters as necessary, and then use the number of parameters to decide if the intersection is a line or a plane.